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ABSTRACT

Developed to assist librarians in the measurement and evaluation of the library's ability to provide services, this guide suggests a number of evaluation techniques that may be used once the reasons for a study have been clearly determined and locally peculiar conditions have been taken into account. The first section explains methods for assessing library use, offers procedures for measuring activities that occur in the library including room and equipment use, and outlines techniques for determining in-library circulation and for maintaining library program records. The following section explains several methods for evaluating the library's collection, and the final section introduces the basic concept of sampling as an evaluation tool for library usage and collection study. Two charts summarizing assessment of library use methods and collection evaluation methods are included, along with a table of random numbers and lists of suggested readings for each section. (RAA)

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EVALUATING LIBRARY SERVICES

New Mexico State Library Occasional Paper No.8

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Introduction

Evaluation of library services is an important part of library administration and an essential component of the planning process. In general, evaluation permits you to determine how well your library is meeting its current objectives and how best to establish and meet future objectives. Specifically, information from evaluation studies can help you assess individual policies and procedures; budget, staff, and equipment allocations; and program effectiveness. Planning for future services and for changes to insure that the library remains responsive to the community cannot be done without careful evaluation of existing library services. Evaluation is also vital documentation for justifying budget requests and for explaining library activities to funding officials, the library board, and the public.

The purpose of this paper is to help you conduct studies to measure and evaluate your library's ability to provide services and materials. Several different methods are suggested. Not all the suggested methods will be suitable for every library. The procedures you choose for evaluating your library will depend on local considerations such as staffing, existing routines, and, most importantly, the purposes for which you undertake the study. An evaluation study should be undertaken only after you clearly state the reasons for the study and decide what data will be necessary to obtain.

The first section explains methods for assessing library use. Procedures for measuring activities that occur in the library, including room and equipment use, are offered. Techniques for determining in-library circulation and for keeping records of library programs are outlined.

In the second section, several methods for evaluating the library's collection are explained.

The last section introduces the basic concept of sampling as an evaluation tool. Sampling is a technique that allows you to obtain reliable data by studying only a portion of a group instead of the entire group. Sampling may be applied to the study of library use as well as to the study of the collection.

The Development Bureau of the State Library will be glad to answer questions or provide assistance with any of the evaluation methods described in this paper.

Assessing Library Use

Assessing Library Use

It is generally accepted that circulation and registered borrower statistics present a limited picture of library service. However, development of additional measures of service that are reliable as well as manageable is not a simple task. "Assessing library use" is an effort to document the activities and services of a library that are not included in counts of borrowers and circulation.

This part of the guide contains ways to measure activity in the library, including use of equipment, in-library circulation of materials, program services, and the use of the library's facilities.

The reason for measuring these services is to gain a more comprehensive picture of what the library does to serve the community. If the reports of library service are limited to the number of books purchased and circulated, and the number of registered borrowers, an important part of the daily efforts of the library is missing. The information collected on library use can be included in the local and state reports, and can be part of the budget justification.

It is not essential, nor is it recommended, that a library attempt to make use of all of these measures at once. A decision about an assessment of use should be based on what information would be most useful as budget support, and which assessment activities are manageable.

MEASURING ACTIVITY AND USE OF EQUIPMENT

For many libraries, the physical use of the facilities is a significant part of the service provided to the community, yet a documentation of this use is often lacking. An idea discussed in *A Planning Process for Public Libraries** is that of "User Service Hours." Based on Morris Hamburg's concept of "document exposure hours," User Service Hours is an approach to the measurement of the hours of service given to the community.

Using the data collected in checks of facility use, the average number of people is determined. This number is multiplied by the number of hours the library is open, and the resulting number is said to be the amount of service hours provided. This is a new measurement, and there are questions about its acceptance, as well as the method of calculation. It is suggested that libraries examine the procedure before using it for reporting purposes. As libraries around the country implement the *Planning Process* and test this concept, the result should be an acceptable formula.

In this guide, more specific applications of data to be used for reporting purposes and decision making have been emphasized. This included information on days and hours of peak use, most used equipment, and most frequent activities of people in the library other than checking out books.

* See Suggested Reading List, p. 15, Palmour, Vernon E. and Others

DATA COLLECTION AND ANALYSIS

Activity Check/Patron Observation: An Activity Check is one method that can be used to identify what people do, and what equipment they use, while in the library. Patron observation is a way to conduct an activity check.

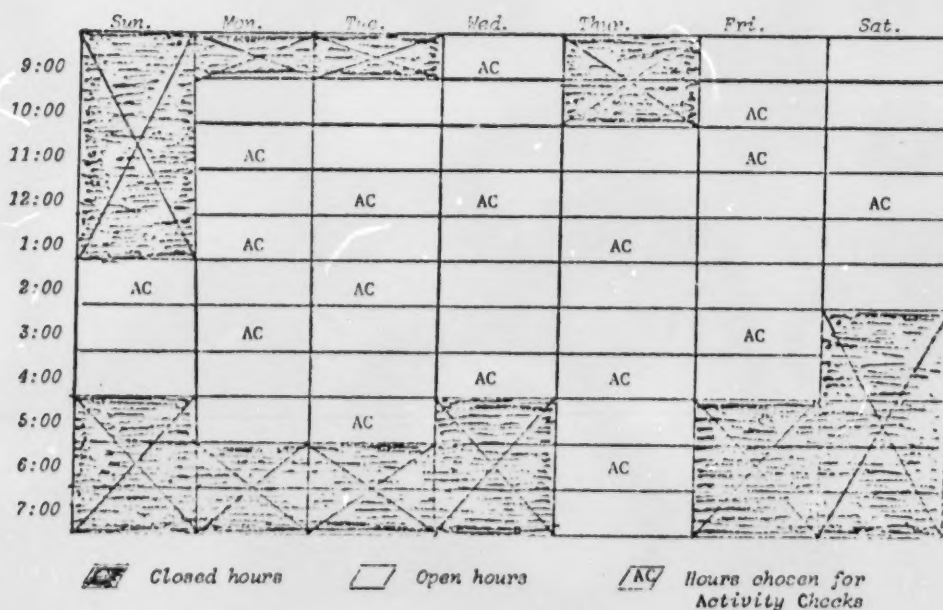
The first step in an Activity Check is to identify and list the chairs, tables, rooms, and positions available for use. The list makes up the total number of places that must be observed during each activity check.

The second step is to develop a list of activities--what people do in the library. This list includes equipment such as photocopiers, record players, video monitors, and microform readers, in addition to the activities of reading, studying, writing, etc. The activities listed should be appropriate to the individual library. The tally forms used for Activity Checks consist of this list of activities and equipment, with the identified places and positions indicating where these activities take place.

The third step is to decide on the length of time the check is to be conducted. One way is to schedule checks several times a day, every day, for one week. Different hours are sampled on different days. It is suggested that the number of hours sampled during an Activity Check should be just over one-third, or 34%, of the total hours the library is open to the public each week. This amount of time is recommended by the authors of *A Planning Process For Public Libraries*, and is considered by them to provide a reliable sampling of library activity. The morning, afternoon, evening, and weekend hours selected for sampling should be in proportion to the hours the library is open during these periods.

A library open 50 hours a week would require a sample of 17 hours spread over each day of the week the library is open. The schedule might look like this:

Figure 1. 17 hours sampled in 34 Activity Checks made on the hour and half-hour



Hours selected for sampling should be in proportion to the hours the library is open. The library in the example is open 11 morning hours during the week. Four of these morning hours are sampled. There are 25 afternoon hours of service which are sampled by nine hours. Five evening hours require two samplings. Saturday and Sunday require only one hour apiece for sampling purposes, since the library is open less than eight hours on each of those days.

The fourth step is to conduct the Activity Checks. These are carried out by a staff member or volunteer who "walks through" the library, observing and recording activity on the tally form. Each identified position is observed, and the persons occupying these positions are tallied according to their activity. Persons seated for more than one check period are counted each time. *A Planning Process For Public Libraries* suggests that Activity Checks be made at twenty minute intervals during each sample hour. If preferred, checks may be made on the hour and half hour, instead. Samples used in this guide are based on the hour and half-hour schedule.

A tally form for one day might look like this:

Figure 2. Tuesday Activity Check
Hours open: 10 a.m. - 6 p.m.
Three Sample Hours
Counts made on the hour and half-hour

	12:00	12:30	2:00	2:30	5:00	5:30	TOTALS
Reading, studying writing	/// ///	/// /// //	/// //	/// ///	/// /// ///	/// /// ///	72
Other: at Reference table, card catalog, magazine rack, etc.	////	/// /	//	///	////	/// //	26
Using photocopier	/	/	/		/	/	5
Microform readers (2 pieces of equip)	/	/			//		4
Record players (2 pieces of equip)			/	/			2
Video monitor			/	/			2
Conference rooms in use (2 rooms)	/	/			/		3
People in rooms	/	/			///		5
TOTALS	18	22	12	13	26	28	119

To avoid confusion, definitions for the activities as well as instructions for tallying should be clear. As an example, since the "Other" category can contain a variety of activities, specific "do tally" and "don't tally" instructions are needed by everyone who will conduct Activity Checks. Consistent records must be made so that results are reliable.

Libraries with several departments and multiple areas of public use may prefer to conduct separate Activity Checks for each different area. Tally forms would be adapted to record suitable information for the various departments.

Analyzing the Data

Activity Check data can be used to determine the average number of people that can be expected to be in the library at any given time. This information could be used to analyze traffic patterns for the purpose of making staff and time allocations.

1. At the end of the week, Activity Checks for each day are combined to find out the number of people who were in the observed places, as recorded by activity. The example below uses data from *Figure 2*, and Activity Check information from the rest of the week.

Figure 3. Week Totals for Activity Checks

	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	TOTAL
Reading, studying writing	22	39	72	49	61	79	46	368
Other: at Reference table, card catalog, magazine rack, etc.	18	29	26	35	40	37	19	204
Using photocopier	1	6	5	5	6	6	2	31
Microform readers (2 pieces of equip.)	1	3	4	6	6	4	2	26
Record players (2 pieces of equip.)	1	3	2	3	4	1	2	16
Video monitor	0	1	2	4	5	1	3	16
Conference rooms in use (2 rooms)	1	4	3	4	5	2	1	20
People in rooms	2	6	5	7	13	3	3	39
TOTALS	46	91	119	113	140	133	78	720

2. The averages are calculated by dividing the number of people by the number of counts.

$$\frac{\text{Number of people counted}}{\text{Number of Activity Checks}} = \text{Average number of people}$$

The average number for the week would be $\frac{720}{34} = 21.1$ rounded to 21.

The daily averages are also calculated to provide a more complete picture for comparison.

Figure 4. Table of Averages for the Week

Day	Number of people counted in each activity check	Number of activity checks	Average number of people per day
Sun.	19, 27 = 46 +	2	23.0
Mon.	12, 16, 20, 12, 15, 16 = 91 +	6	15.2
Tue.	18, 22, 12, 13, 26, 28 = 119 +	6	19.8
Wed.	6, 6, 20, 24, 33, 25 = 114 +	6	19.0
Thur.	31, 22, 17, 21, 24, 24 = 139 +	6	23.2
Fri.	12, 12, 22, 29, 31, 27 = 133 +	6	22.2
Sat.	35, 42 = 77 +	2	38.5

This data does not provide solutions, but alerts staff to areas of consideration for possible improvement. For example, in Figure 4, the indications are that Thursday is a very busy day. This is probably due to the evening hours, suggesting consideration should be given to adding evening hours on other days.

The average number of people counted on Monday is considerably lower than the overall average of 21 for the week. There may be various reasons for a day that has low use. Perhaps the Activity Check was made under unusual circumstances--bad weather or school holidays. Continued observation may be needed before conclusions are made. If the day proves to be consistently slow and additional hours are needed on other days, the schedule might be shifted. Work that needs minimal interruption might be scheduled for this day.

Before changes in hours are made, it may be useful to calculate the average number of people by time periods.

Figure 5. Average number of people by time period (for one week)

Time Period	Number of Hours Open	Average Number of People
Weekday		
a.m.	11	14.4
p.m.	25	21
evening	5	25.8
Saturday	6	39
Sunday	3	23

This break-down indicates that existing evening hours are heavily-used, with morning service hours relatively light in use. A shift to more evening hours and fewer morning hours would probably have only limited effect on existing morning activity. Additional examination of evening and morning hours would contribute to a final decision. As mentioned earlier, Activity Check information alerts the librarian to areas for further study, without offering solutions.

Activity Checks Using Other Time Schedules

Activity Checks can be conducted every hour during one day of the week throughout the sample period of time. The tally form records the same information--number of people and type of activity.

Using the same library as before, the tally form for Tuesday with checks made on the hour and half-hour throughout the day might look like *Figure 6* on the following page.

Hourly counts made throughout the day would be useful in determining times of peak use during a particular day. For example, *Figure 6* shows peak use hours occurred during activity checks made from 3:00 - 5:30. The every-hour schedule, if conducted one day a week for five or six weeks, would provide abundant data for every day the library is open. This effort is obviously time-consuming and would seem to be most suitable when significant operational changes are anticipated.

Calculating Equipment Use

Another function of Activity Check data is to determine an overall use factor for various equipment categories. This is useful if replacement equipment is planned, if some equipment seems to be under-used, or if there is a question about best use of limited space.

Figure 6.

Figure 6.

Tuesday Activity Check

Hour and half hour samples throughout the day

	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	TOTALS								
	10:30	11:30	12:30	1:30	2:30	3:30	4:30	5:30									
Reading, studying writing	///	///	///	///	///	///	///	///	177								
Other: at Reference table, card catalog, magazine rack, etc.	/	///	///	///	///	///	///	///	63								
Using photocopier	/	/	/	/	/		/	/	9								
Microform readers (2 pieces of equip.)			/	/		//	//	//	8								
Record players (2 pieces of equip.)					/	/	/		3								
Video monitor				/	/	/	/	/	7								
Conference rooms in use (2 rooms)	/	/	/	/	/	/	//	/	9								
People in rooms	/	/	/	/	/	///	///	///	16								
TOTALS	6	8	12	12	18	22	15	14	12	16	28	28	22	25	26	28	292

The formula for finding the Use Factor is to divide the number of users by the product of the number of counts when multiplied by the number of pieces of equipment. A Use Factor of 1. is maximum use.

$$\frac{\text{Number of users}}{(\text{Number of counts}) \times (\text{Number of pieces of equipment})} = \text{Use Factor}$$

Using the information from Figure 3, a use factor for the photocopier has been determined.

$$\begin{aligned} \text{Number of photocopiers} &= 1 \\ \text{Number of counts} &= 34 \text{ (from Figure 4)} \\ \text{Number of users} &= 31 \end{aligned}$$

$$\frac{31}{34 \times 1} = \frac{31}{34} = .91$$

A Use Factor of .91 shows almost maximum use is made of the photocopier. If the tally record and/or observation shows that people consistently must wait to use the machine, consideration should be given to an additional photocopier.

Video equipment is expensive, and is often hard to justify. When purchased, it is important to show that use is being made of the equipment. The Use Factor can provide this information.

$$\begin{aligned} \text{Number of monitors} &= 1 \\ \text{Number of counts} &= 34 \\ \text{Number of users} &= 16 \end{aligned}$$

$$\frac{16}{(34 \times 1)} = .471$$

If this Use Factor is lower than is desirable, thought should be given to ways to improve it. Perhaps people are unaccustomed to using video in the library, and staff may need to familiarize themselves and library users with the video programs that are available. Operating instructions may be unclear or not available. The posting of clear operating instructions in a convenient place may encourage more use. It is important that a level of satisfactory use be established for all equipment, since it is unlikely that any equipment will be constantly used.

Information collected on reading, studying, and writing activities can contribute to any decisions that need to be made about use of space. Chairs, couches, tables, etc. have been identified in the preparation for Activity Checks, so the number available is known. As an example, assume that there are 31 seats that can be used.

Number of seats = 31
Number of counts = 34
Number of users = 368

$$\frac{368}{(34 \times 31)} = .35$$

The Use Factor indicates that the overall seating capacity of the library is adequate. There may be occasional need for more seating, but to allocate more space for additional study or reading activities does not appear to be justified.

Most librarians have a good idea of what is happening without recording information on a tally form. This method provides documentation for activities and ways of presenting information for reporting and budget purposes. It is not really necessary to record everything that happens every day to have a reasonably accurate, supportable record of library activities. Decisions about Activity Check data and calculations depend on what information would be most useful and beneficial to the library. Only data which is needed should be collected.

IN-LIBRARY CIRCULATION OF MATERIALS

A considerable amount of materials use occurs in the library, without any check-out record. In testing done in libraries by DeProspero and Altman, the materials used in the building accounted for an additional 25% circulation. Admittedly, there are some difficulties with this measurement. It is impossible to know if each item that is out of place and is counted in a Materials Check has, in fact, been used, or just examined and discarded. Although an imprecise measure, there is still value in examining the kind of materials used, with what frequency, by people who come to the library.

Materials Check: One of the usual ways to measure in-library use is to count materials that are out of place before they are re-shelved. This is done by asking patrons to help the library conduct a survey by leaving their used materials on nearby tables, rather than replacing them on the shelves. As an alternative, people may be requested to bring materials to a central, designated collection place. Signs asking for patron assistance with this effort should be prominently displayed. It is equally important that staff, during the day(s) selected for this check, be alert to provide information and assistance to those who need help with survey procedures.

A Materials Check is conducted over a specified time period, on a regular schedule. At pre-determined times during selected days, items not in their proper places are collected for recording purposes. Materials in use at the time of the check are not included, since all materials are counted at the time they are collected. Books that are obviously out of

place, but on shelves may be gathered up for the count. If this is to be done, signs should be posted asking that books be placed at the ends of the shelves, rather than replaced in an upright position.

The records made for the check depend on what information is needed and how it is to be used. The number of materials used during the sample times should be averaged in order to report, with reasonable accuracy, the amount of in-house circulation. This figure is one of the items making up the total circulation statistic for the library. If more specialized information about material used in-house is needed for collection evaluation purposes, a record by type of material can be made. Non-fiction picked up in each collection of materials is recorded by Dewey classification. Sub-divisions are used as needed. Magazines are counted by title. Newspapers can be divided into local, regional, state and national coverage. A count of fiction is optional. A count done this way, when combined with a circulation analysis done in the same Dewey categories, comprises a comparative base for collection evaluation use.

COLLECTING DATA BY USER SURVEYS

Another way to collect information about library activities and materials use is to do a survey of the people in the library. A questionnaire is one of the most frequently used survey tools, but the construction of a good questionnaire is not easy. Books are written on the subject, and companies specialize in survey development and analysis. Surveys can yield comprehensive information about citizen awareness, patron attitudes, levels of satisfaction with the library, preferred library services, etc. To conduct a survey limited to such questions as "Why did you come to the library?" and "What did you use while you were here?" seems hardly worth the effort. It is recommended that the questionnaire method of surveying be used to gather more detailed information. Sources for suggestions and details on patron and citizen surveys are listed in the bibliography at the end of this section.

A personal interview is probably the easiest and most direct method of surveying people about their use of the library. As the Activity Check schedule is developed, certain times and positions are selected for interview purposes. At the time of the Activity Check, the staff member or volunteer asks people occupying selected places at appropriate times to answer questions about their library activities. Questions should be planned to obtain the information wanted.

"What is the most important reason you came to the library today?"

"What materials are you using while you are here?"

"What equipment are you using, or have you used, while you are here?"

Since even well-written questionnaires can have different interpretations, the advantage of a personal interview is the opportunity to be sure the person is answering exactly what is being asked.

The personal interview method of finding out activity and materials use within the library depends, to some degree, on the size of the library, as well as on the number of staff available to interview people. In many libraries, it is probably more natural and convenient to talk with people about how and why they use the library than any other way that has been discussed.

If personal interviews are chosen as the way to assess use, a uniform approach to the interviews is important. Some training may need to be done on how to approach people for an interview, what to do when they say "NO!" and how to handle the occasional overly-talkative person. A way to record information in a consistent manner should be developed, and each person who will do interviews should be familiar with the procedure.

A limited survey of users is described by DeProspero in *Performance Measures for Public Libraries*. This survey is designed to find out the characteristics of people coming to the library, their level of satisfaction with service and materials, and the time they spent in the building. The information asked is deliberately restricted, with the expectation that response will be high. A staff member or volunteer marks each person's time of arrival on a numbered ticket. This ticket is given to the user to be filled out. The ticket is returned when the individual leaves, and the time of departure is marked on the ticket.

Users complete information on sex, their grade level if students, or their occupation if they are not students. The general satisfaction level is determined by asking: 1) if the material wanted was obtained and 2) if the service expected was received. This particular section of the survey seems to be the weakest. Data received does not seem to be specific enough to be useful. It is suggested that, for purposes of assessing library use, information about activities, materials, and equipment use be substituted. The resulting survey tool would identify types of users, their length of stay and their activities while in the building. Significant information about people who use the library could be collected over a sampling period. User profiles by age, by grade level, if desired, and by occupation could be developed. A comparison of these profiles with information from community analysis and/or census data could identify under-served groups of people. User profile information and their "library habits" could be analyzed, with possible effects on hours of operation, staffing patterns, purchase priorities for materials, and loan policies.

This method is presented in detail in DeProspero's book. The companion volume, *A Data-Gathering and Instructional Manual for Performance Measures in Public Libraries* contains forms and instructions for preparing survey tickets and for coding and tallying the information collected, as well as formulas for analyzing the information.

The concept of "Effective User Hours" is introduced in these books. The intent is the same as the "User Service Hours" discussed in *A Planning Process for Public Libraries*, but the formula is based on a record of the number of hours spent by people in the library.

$$\frac{\text{Number of hours spent}}{\text{Number of hours open}} = \text{Effective User Hours}$$

If a sampling period is used, the hours spent would be divided by the number of hours of the sample period, rather than the total hours of operation. This formula is based on the amount of time people spend in the library, rather than on the average number of people using the library. For this reason, it appears to be a credible approach to the hours of service to the community. Gathering and tabulating information on length of stay by individuals will, however, require a considerable commitment of time and staff.

PROGRAM RECORDS

The purpose of keeping a Program Record is to document the types and numbers of programs offered by the library, as well as the number of people served this way. In thinking through the development and organization of useful records, the following ideas may be helpful.

Program types or formats can include films, exhibits, lectures, workshops, radio shows, story hours, book talks, discussion groups, demonstrations, and "other."

Each event should be recorded by type, and attendance records kept. "Approximate number" may be used when necessary, but should not be a substitute for good record keeping.

Programs intended for people characterized by age, sex, education, ethnic origin, occupation, physical or mental disability will probably fit into the program formats mentioned. When useful, these events can also be recorded by type of audience to document services to special groups.

Program Record information can be a part of the file kept of audience response and evaluation of individual events.

FACILITIES USE RECORD

Not all libraries have meeting rooms, auditoriums, or exhibit space. Libraries that do have this kind of space available for public use provide a community service that should be recognized.

A Facilities Use Record collects information about the use of these public facilities by community groups. This information is a part of the library's annual report.

The person making space reservations can provide the name of the group to be meeting, and the purpose of the meeting. The number of people attending can be supplied at the end of the meeting. These records are kept and compiled on a monthly basis. A report on the frequency of use of meeting space, the number and types of groups using library facilities, and, in most cases, the number of individuals served can be made. Records analysis may indicate that more information to the public about the availability of public meeting space is needed, or that additional chairs, if purchased, would be regularly used.

Ed Howard, former director of the Vigo County Public Library in Terre Haute, Indiana, has written an article in *Library Journal* strongly supporting the concept of keeping service records and statistics on a broad basis. His explanation of the service outputs of the Vigo County Library, and the way these are measured, is interesting and thought-provoking reading. Larger libraries with several departments and several types of staff services may want to examine the records he discusses.

SUMMARY

This section has been concerned with Activity and Materials Checks in the library, and with Service Records for programs and for use of facilities. The data collected by these methods should be used with other statistics to present a more complete picture of library service in the community. Measures to determine how the library is used are not new, but the idea is one that seems to be of increasing importance and usefulness.

ASSESSING LIBRARY USE METHODS

METHOD	TECHNIQUE	ADVANTAGES	DISADVANTAGES	PRODUCT
Activity Checks	1/ every day, for one week, several times a day	reasonably accurate data for one week	sample hours must reflect day's activities fairly or results will be biased	Equipment and Facility Use
	2/ hourly checks on one day	good data for one day of service; can spread over several weeks & have detailed information for every day of service	labor-intensive; may need more than one day's sampling to project weekly service patterns	Equipment and Facility Use Day-by-day comparison of activities
Materials Checks	1/ by type of material	easy to do with simple record keeping	not know if all items actually used; not able to control re-shelving by users.	In house circulation
	2/ by Dewey classification	provides subject-use information and ties in with collection evaluation procedures	not know if all items used; not able to control re-shelving; record keeping more complex	In house circulation Subject comparison with regular circulation
Questionnaire		comprehensive information about attitudes toward the library, preferred services, etc.	needs careful development in order not to influence results; survey questions may be subject to personal interpretation & bias	Data for decision making
Personal Interview	usually conducted as a part of Activity Check	direct contact with library users; immediate feed-back	staff must have some training in procedures; can be time-consuming	Specific user information
Program Record				Documentation of library service
Service Record				Documentation of library service

SUGGESTED READING LIST -- ASSESSING LIBRARY USE

Altman, Ellen and others. *Data Gathering and Instructional Manual for Performance Measures in Public Libraries*. Celadon Press, 1976.

Section 4 of this book provides a brief discussion and forms for keeping records of in-library circulation, circulation distribution, and use of equipment and facilities. Although designed for hourly checks throughout the day, forms could be adapted for other time schedules. This book should be used in conjunction with its companion manual, *Performance Measures for Public Libraries*.

Childers, Thomas. "Statistics That Describe Libraries and Library Service." *Advances in Librarianship*, edited by Melvin J. Voight. Academic Press, 1975, pp. 107-122.

A review of the literature of library statistics. The problems of developing valid statistics to measure library output are discussed with brief explanations provided of some of the recent work done by Orr, DeProspero, Beasley, and Hamburg.

DeProspero, Ernest and others. *Performance Measures for Public Libraries*. American Library Association, 1973.

Chapter 4, pp. 31-45, gives suggested methods for measuring facilities use and in-library circulation, along with ways to measure user satisfaction, time people spend in the building, outside library circulation, reference use, and public service personnel contact with the public.

Gore, Daniel. "The Mischief in Measurement." *Library Literature* 9, *The Best of 1978*. Scarecrow Press, 1979, pp. 200-215.

Amusing and objective article citing some of the author's experiences in his efforts to measure the provision of books to readers. No methodology for measuring library use is presented, but the article is recommended because it presents a slightly different view of the problems of measuring service.

Hamburg, Morris and others. *Library Planning and Decision-Making Systems*. MIT Press, 1974.

The premise of this book is that "the basic objective of libraries is to maximize exposure to documents (direct or indirect, in the library or out of the library, in the short run and in the long run)." Measures of library performance are based on exposure counts, item-use-days, and exposure time. "Exposure hours," as explained in Chapter 2, is the conceptual basis for "User Service Hours."

Howard, Ed and Darlene Norman. "Measuring Public Library Performance." *Library Journal*. February 1, 1981, pp. 305-308.

A discussion of one library's output and the way it is measured. "Complete Service Statistics" records the output of five categories: lending services, facilities services, information services, production services, and staff services. This information is used to determine if library objectives are being achieved, as well as providing accountability to the community.

Jain, A.K. "Sampling and Data Collection Methods for a Book-Use Study." *Library Quarterly*, Vol 39, No. 3, 1969, pp. 245-251.

This article compares the "collection method" with the "check-out method" for conducting a book-use study in an academic library. The concept of "relative use" is developed to take advantage of the best features of both. Useful background reading, and a rationale for the "Materials Check" procedure.

Lancaster, F.W. *The Measurement and Evaluation of Library Services*. Information Resources Press, 1977.

Chapter 1, pp. 1-18, is a brief but comprehensive overview of the uses of evaluation for effectiveness, cost-effectiveness, and cost benefit. Chapter 11, pp. 290-311, reviews the large amount of literature on library surveys, with a critique on their value and limitations. Chapter 12, pp. 316-318, has a discussion of the influence of the physical location of the collection on its use.

Line, Maurice. *Library Surveys: An Introduction to Their Use, Planning, Procedure and Presentation*. Archon Books, 1967.

A complete range of information on how to plan, develop, conduct, and analyze results of a survey.

Palmour, Vernon E. and others. *A Planning Process for Public Libraries*. American Library Association, 1980.

Chapter 13, "Statistics and Performance Measures for Evaluation of Services;" Chapter 17, "The User Survey;" and Chapter 18, "Processing Survey Data" are particularly helpful in measuring the uses made of the library. Much of the information in this guide is based on or adapted from methods described in this source.

Urban Institute and International City Management Association. *Measuring the Effectiveness of Basic Municipal Service: Initial Report*. February, 1974.

The service effectiveness measures for the library suggested in Chapter III include overall citizen satisfaction, comprehensiveness and availability of book and periodical holdings, physical attractiveness and accessibility. DeProspero's *Performance Measures for Public Libraries* is a source for some of the specific measures and procedures. Publications from the Urban Institute and the International City Management Association are usually well received and used by city administrators. This could be a good book to bring to their attention if you want city support for your evaluation efforts.

Evaluating the Collection

Evaluating the Collection

This section will describe several methods of collection evaluation. Each library's situation is different, so the best method or combination of methods for each library will vary. In determining which method is best for your library, consider these points:

1. What do you hope to accomplish from the collection evaluation process?
2. What method will fit most easily with current library routines?
3. How much staff time is available for collection evaluation?

WHY EVALUATE THE COLLECTION?

There are a variety of reasons why you might want to evaluate your collection. You may even have more than one motivation.

- The data derived from collection evaluation will be a basis for determining book selection priorities.
- An evaluation of the collection will be a barometer of the changing interests and needs of the community.
- Collection evaluation will help determine which areas of the collection can be heavily weeded to provide much needed shelf space.
- The results of an evaluation will aid in developing and justifying budget proposals to local government officials.
- Collection evaluation is a requirement of the New Mexico State Grants-in-Aid to Public Libraries.

These are just a few reasons, and you may have others. Whatever your reasons for collection evaluation, make sure the reasons are clear to you, clear to the library staff, to the board members, and to anyone else who will be involved with or affected by the process or the results.

EVALUATION METHODS

Most literature on collection evaluation refers to evaluation of the adult book collection. All of the methods listed in this guide could, with some adaptations, be used to evaluate the children's collection, audiovisual collection, magazine, and newspaper collection. If you choose to evaluate the entire library's holdings, you may find it necessary to select different methods for different portions of the collection. For example, if you choose a method using circulation statistics to evaluate the adult and children's book collections, you would need a different method, or an adaptation of the method, to evaluate collections that do not circulate.

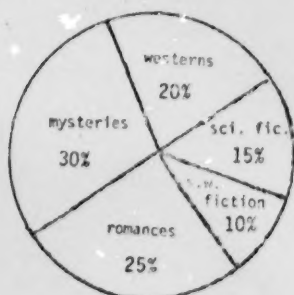
You may decide to concentrate your evaluation on a portion of the collection, at least until you have become familiar and comfortable with the collection evaluation process. Choose the portion of your collection that you feel needs the most immediate attention.

MEASURING COLLECTION SIZE AND DEMAND

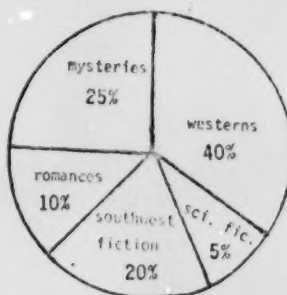
Since libraries already collect a variety of statistics, a statistical method of collection evaluation may be easily adapted to existing routines. A variety of statistics relating to the collection should be collected and compared.

1. *Size of various segments of the collection compared with the collection as a whole.* Segments of the collection, usually divided by Dewey class numbers or subject categories, can be counted and compared with the size of the total collection. An easy way of counting titles is to measure the shelf list...one inch of shelf list equals 100 titles on the shelf.
2. *Amount of circulation of segments of the collection compared with the total circulation.* Use the same divisions of the collection as you used to measure the size of the collection. Interlibrary loan requests and in-library use of materials can be counted, since they also represent circulation.
3. *Number of new titles added each year to the various segments of the collection.* Although this statistic is useful, it may be impossible to obtain unless you have been keeping records of all new acquisitions by Dewey class or subject.

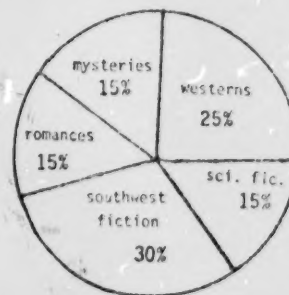
The statistics are collected separately, but are then compared with each other. The comparison may show a picture like this.



Collection Size



Demand (circulation)



New Acquisitions

The next step is to analyze the results. Since the demand for westerns is considerably greater than the relative size of the collection of westerns, you might decide that you should increase your purchase of western titles. Although you have been trying to improve your science fiction collection over the past few years, the demand does not seem to warrant the amount of purchasing you have been doing. The proportion of new acquisitions in Southwest fiction, however, does seem justifiable, until that portion of the collection is built up to meet the needs of the users.

These pie graphs have illustrated the example, but if you are looking at a large number of groups or segments of the collection, pie graphs can become unwieldy. A simple mathematical method has been devised that will produce the same information in a quick and easy way.

Step 1: Determine the number of circulations in each collection category, and the total number of circulations for the entire collection.

Step 2: Determine the number of titles in each category, and the total number of titles in the collection.

Step 3: For each category, divide the number of circulations in each category by the total number of circulations; and divide the number of titles in each category by the total number of titles in the collection. To arrive at a reasonable level of mathematical accuracy, carry the division to at least four decimal points.

$$\frac{\text{Number of circulations in a category}}{\text{Total number of circulations}} = \text{Proportion of circulation}$$

$$\frac{\text{Number of titles in a category}}{\text{Total number of titles}} = \text{Proportion of collection size}$$

This example may clarify the process for you.

$$\frac{73 \text{ circulations in Dewey 150-159}}{2,260 \text{ total circulations}} = .0323$$

$$\frac{380 \text{ titles in Dewey 150-159}}{20,000 \text{ total titles}} = .0190$$

In this example, the titles in the library's section of Dewey numbers 150 through 159 represent .0323 of the total circulation and .0190 of the total titles in the library.

Step 4: Calculate the "degree of use" by dividing the proportion of the circulation for a category by the proportion of the collection size.

$$\frac{\text{Proportion of circulation}}{\text{Proportion of collection size}} = \text{Degree of use} \quad \frac{.0323}{.0190} = 1.7$$

The degree of use reflects the ratio between size of a section of the collection and demand. If the degree of use is close to 1.0, the library probably owns just about the right number of books in that subject category to meet the demand. If the degree of use is less than 1.0, the library owns more titles on that subject than the demand warrants. If the degree of use is greater than 1.0, the library may need to purchase more books in that subject area to meet demand. You can adjust expenditure of your book funds based on these results, and the test can be repeated periodically to adjust to changing demands and to improvements in the collection.

One advantage of this method of collection evaluation is that it bases the evaluation on actual use of the collection. One disadvantage is that it does not take into consideration the needs of people in your community who do not use the library. For example, there may be a need for Spanish-language books in your community, but if your library's collection is completely English-language material, the circulation statistics cannot show the potential demand for Spanish-language material.

Another disadvantage of using this method is that it does not evaluate quality of the collection, but only quantity. For example, the degree of use of your science section may be 1.0, indicating there is about the right number of titles to satisfy demand. But the method will not show that 50%

of the science titles are over 15 years old, outdated, and never used. Or, your Southwest collection may have a degree of use of .45, indicating that your library has more books in that area than necessary, but does not indicate that there are very few books on Indian pottery, which are heavily in demand. Other evaluation methods can be combined with this method to discover such collection weaknesses.

CHECKING BIBLIOGRAPHIES AND OTHER LISTS

This method of collection evaluation compares various lists prepared by others to the holdings of your collection. Presumably, a high percentage of match between the lists and your collection indicates that your collection is of high quality. The exact percentage of match that is acceptable will depend on your own judgment.

There are several disadvantages to this method of collection evaluation. Bibliographies quickly become outdated. Some of the bibliographies and lists may be difficult to acquire. The bibliographies and lists might not reflect the local interests and needs of your community. For example, you may have developed a rather good collection of material on water rights, if that is an important issue in your community. But the bibliographies you use to evaluate your collection may not include even one title concerning water rights.

Despite the many problems involved with this method of evaluation, when used for sections of your collection, or in combination with other evaluation methods, it may be a useful method in your library. The following three pages contain a list of selected bibliographies and other sources you might find helpful if you decide to use this method. If you do use this method, there are several points to remember:

1. Lists of "best books" and "best sellers" may reflect the best books in a particular year. As time passes, some of the titles become out of date and are no longer desirable in a library collection.
2. It is advisable to use more than one list when using this method of collection evaluation. No bibliography or list by itself is adequate to evaluate your entire collection.
3. Some lists are prepared for school or academic libraries, but may have application to public libraries as well.

A SELECTION OF LISTS FOR COLLECTION EVALUATION

STANDARD CATALOGS AND GENERAL LISTS

- H.W. Wilson Company's quintet: Public Library Catalog, 1978; Fiction Catalog, 1976; Children's Catalog, 1976; Senior High School Library Catalog, 1977; Junior High School Library Catalog, 1975. Dated material, but they can be useful in evaluating "classic" holdings in both fiction and nonfiction.
- Books for Public Libraries; Nonfiction for Small Collections, 2nd edition, 1975. Dated, but useful as a subject checklist in evaluation of nonfiction collections, especially when used with other lists.

SOME CURRENT LISTS

- Book Review Digest. Provides a monthly compilation of fiction and non-fiction based on the number of reviews a book has received. Titles receiving a large number of reviews may be an indication of high demand.
- Choice. A monthly selection of books for college libraries which may be useful to large public libraries in their collection evaluation.
- Booklist. Bi-monthly publication of recommended publications for small and medium-sized public libraries.
- New York Times Book Review. The weekly Editor's Choice of best books, over the period of a year, may comprise a useful list of recent publications that can be used for collection evaluation.

LISTS OF BOOK AWARDS

There are many book awards given each year. Compilation of the book titles that were awarded prizes over a number of years may be a useful list for collection evaluation purposes. Following is just a partial list of book awards:

The American Book Awards (by the Association of American Publishers)
Bangroft Prizes (for American history)
Albert J. Beveridge Award (for North American history)
Irma Simonton Black Award (for children's books)
Bollinger Prize in Poetry of the Yale University Library
Boston Globe - Horn Book Awards
Caldecott Medal (by the American Library Association)
Children's Book Award
Children's Science Book Awards (by the New York Academy of Sciences)
Ernest Hemingway Foundation Award
Janet Heidinger Kafka Prize
Golden Spur Award (by the Western Writers of America)
Children's Spring Book Festival Award (by the NY Herald Tribune)
National Book Critics Circle Awards
Newbery Medal (by the American Library Association)

REFERENCE BOOKS

- Eugene P. Sheehy's Guide to Reference Books, 9th edition, 1976. Supplement, 1980. A useful list of popular reference titles and more scholarly research tools.
- Reference Books in Paperback, 2nd edition, edited by Bohdan Wynar, 1976. An annotated bibliography of reference titles available in paperback. Includes sections such as horticulture, crafts, and taxes, that may be particularly useful in evaluating a public library's reference collection.
- American Reference Books Annual, 1980, volume 11, edited by Bohdan Wynar, 1980. A comprehensive reviewing service for reference books published in the U.S. in 1979. Previous editions have been issued annually since 1970. Can be used selectively for an evaluation of a public library's reference collection.

CHILDREN'S LISTS

- Bro-Dart's Elementary School Library Collection, 12th edition, 1979. Helpful in evaluating pre-school through sixth grade collections.
- American Library Association's pamphlets Best Books for Young Adults and Notable Children's Books. Issued annually, a compilation of these lists may be useful in evaluating children's collections.
- The Best of Children's Books, 1964-1978, by Virginia Haviland, Government Printing Office, 1980. Cumulative listing of best books.
- Children's Books, 1979, issued by the Library of Congress through the Government Printing Office, 1980. An annual list helpful for evaluating recent acquisitions of children's books, pre-school through junior high.

SOUTHWEST LISTS

- A Guide to Materials Bearing on Cultural Relations in New Mexico, by Lyle Saunders, 1944. A basic resource for evaluating Southwest collections. Dated, but helpful for libraries interested in maintaining New Mexico historical works.
- A Study Guide to New Mexico History, by Gerald Theisen, 1977. Bibliographies in this book are helpful for evaluating Southwest collections in the field of history.
- Albuquerque Journal. The Sunday edition has a weekly list of best sellers from Albuquerque booksellers. The lists include many Southwest titles. A collection of lists from the past years may be useful in evaluating the general collection and the Southwest collection.
- Book Talk, published five times a year by the New Mexico Book League, Albuquerque. Books of the Southwest, published monthly by the University of Arizona Library, Tucson. Both Book Talk and Books of the Southwest review new publications that are of interest to Southwestern readers. A compilation of titles reviewed in current and back issues of these two publications could be a useful evaluation tool for a Southwest collection.

PERIODICALS

- Magazines for Libraries, 3rd edition, by Bill Katz and Berry G. Richard, 1978. Includes 6,500 periodicals recommended for libraries. Core collection notes are included, and can be helpful in evaluating a public library's periodical collection.

USER OPINION

The user opinion method of collection evaluation involves a survey of users, either through oral interviews, questionnaires, or both. It does seem logical to evaluate a collection on the basis of the opinions of the people who use it. Does the collection meet their needs? How can it be improved?

A common approach to collecting user opinion is sampling people leaving the library to find out if their visits were satisfactory. Did they find the books they came to the library to get, or did they obtain satisfactory substitutes?

There are numerous problems with user opinion surveys. The set of questions and the sample of users must be valid and reliable. The person being surveyed may not know if the books just checked out will be satisfactory until the books are read. People being surveyed may not give honest responses to survey questions, not wanting to be critical of the library or the librarian.

A survey conducted in the library evaluates the collection only on the basis of users' opinions. There may be gaps in the collection that are never revealed in a user survey because the people needing this information or type of material have long since stopped coming to the library, knowing this type of material is not there. The non-users may regularly go to another library or may purchase the books they want. A general community survey could be conducted to obtain the opinions of non-users.

If you decide that a user survey or a community survey is a good method for your library, you might want to obtain the help and guidance of someone with training in survey techniques. You may want to combine, into one survey, questions about the collection with questions about other library services. For more information on planning and conducting surveys, refer to the suggested reading list at the end of this guide, particularly to the publications by Vernon Palmour and Maurice Line.

A survey does not have to be lengthy or complex to be effective, but even the simplest of surveys needs careful planning to produce useful data.

DOCUMENT DELIVERY

The document delivery method of evaluation is based on the premise that a collection can never completely satisfy the needs of its users. Evaluation should be based on the library's ability to deliver materials either from its own collection, or from other sources. The rate of successful delivery as well as the speed of the delivery are the evaluation measures.

Step 1: A test bibliography of 300 titles is compiled. The bibliography should represent the variety of needs of the community. Most published studies on the document delivery system describe the experiences of academic and special libraries, where the test bibliographies were developed from citations in published material. To simplify the method, you could assume that any published material could conceivably be needed by someone in the community at some time. You may want to make some limitations, such as material published in the United States since 1940. You could then take a random sample of titles from sources such as American Book Publishing Record and Books in Print to develop the test bibliography.

Step 2: The items from the bibliography are checked against the library's holdings, and a delivery speed rating is assigned to each title.

- 1 = the book is on the shelf
- 2 = the book is in the library but not on the shelf, or in a special location
- 3 = the book could be obtained from another source within 24 hours
- 4 = the book can be obtained within one week
- 5 = the book would take more than one week to be obtained

There is no designation for a book not available, since it is assumed that any title can be either purchased or borrowed through interlibrary loan. If the title is so obscure or specialized that it could not be obtained, it is probably not an appropriate title for the test bibliography.

Step 3: After all the titles in the test sample are checked and assigned numbers, an average number is calculated, called the "mean speed."

Step 4: This step may be unnecessary, but it does translate the mean speed into a 0-100 scale, which may be easier to evaluate. The resulting number is called the "capability index," and is calculated using the following formula.

$$\text{Capability index} = \frac{5 - \text{mean speed}}{4} \times 100$$

A capability index of 100 indicates all titles in the test bibliography were on the shelf. A capability index of 0 indicates all the titles would only be available after at least a one-week wait.

Step 5: It will be your decision what an acceptable capability index is for your library, and what can be done to improve delivery of materials.

This type of evaluation method seems most useful for libraries with branches or libraries that tend to borrow materials from nearby libraries. In most public libraries in New Mexico, a book not in the library would take at least a week to obtain through interlibrary loan. Therefore, most delivery speed ratings would be 1, 2, or 5. Such ratings would distort the mean speed and the results of the test. If a library obtains books from branches, from a storage facility, or from nearby libraries, and could rate delivery speed in all five ranges, this might be a useful method of collection evaluation.

MULTIPLE COPIES AVAILABILITY

If your concern is availability of heavily used titles, there is a method you can use without going through the document delivery testing procedure.

Step 1: Choose the titles in your collection that circulate most heavily. Between 50 and 100 titles would be suitable for small collections; 200 to 300 for larger collections. The titles can be selected from circulation records, best seller lists, school reading lists, or any other source that indicates heavy use of titles by your library users.

Step 2: Put each title on a separate card, and have a library staff member check each title at least once a month for availability on the shelf.

Step 3: If no copy of a title is available on the shelf, order an additional copy of that title.

Step 4: Repeat the process until one copy is available during the check.

Step 5: When two or more copies are available on the shelf for two consecutive checks, you may want to consider weeding the excess copies and removing the title from your high-use list.

Step 6: Add new titles to this process following the criteria you used to establish the original list.

This method is a way to evaluate your library's delivery capability of high-use titles, and assures that there are sufficient multiple copies available in the collection to meet user demands.

EXAMINING THE COLLECTION DIRECTLY

This method of collection evaluation may be appropriate for evaluating certain sections of the collection, but is not practical for an evaluation of the entire collection. The procedure involves someone familiar with the literature of a subject looking over the material on the shelf to judge the adequacy of the collection. The subject collection is evaluated as a whole, discovering weaknesses and strengths, incorporating the physical condition of the collection into the evaluation. The evaluator's job is to produce concrete suggestions for improving the collection.

The difficulty with this method of evaluation is finding a subject expert who knows the subject literature, understands the needs of the community, and is willing to do the job. If you choose this evaluation method, you might look for an evaluator on a local college faculty. You should be very careful and selective in your choice of an evaluator, and you should be prepared to act on any recommendations the evaluator makes.

LAST, BUT NOT LEAST

You should consider a few points before you begin any evaluation of your library collection.

- Collection evaluation is closely tied to an evaluation of the library's selection policies. The selection policies should be based on the library's goals and objectives. Carefully consider the overall goals and objectives for the library before making any changes or decisions based on the results of the collection evaluation.

- No mention has been made of quantitative national standards for public libraries as a method of collection evaluation. Such standards have been discarded by the Public Library Association in favor of a planning process, where the individual library develops standards appropriate to the local conditions and needs. Determining local needs may be more time consuming and difficult than using set national standards, but the results are more useful for the local public library. Refer to the suggested reading list at the end of this guide for the citation of the Public Library Association's planning manual by Vernon Palmour.
- Collection evaluation is a continuous process. The results you obtain from your first evaluation will reflect the strengths and weaknesses of the collection at that particular time. But, over time, the needs of your community may change, your user groups may change, and the nature of the library's collection may change. In order to assess these changes and make appropriate decisions, collection evaluation must be an on-going activity.

COLLECTION EVALUATION METHODS

Method	Advantages	Disadvantages
Measuring collection size and demand	Statistics are readily available or easily collected Based on local needs	Does not evaluate quality Evaluates collection on the basis of users only
Checking bibliographies	Can evaluate both quantity and quality Method is easy to accomplish	Not based on local needs Bibliographies may be outdated or difficult to obtain Analysis of results may be difficult
User opinion surveys	Can base evaluation on needs of users and non-users Based on local needs Can evaluate both quantity and quality	Survey instruments and methods must be planned and tested for reliability and validity Honest and knowledgeable responses may be difficult to obtain Areas of the collection may be left out of the survey completely
Document delivery	Based on local needs Evaluates access to materials Evaluates quantity and quality	Test bibliography may be difficult to compile Analysis of results may be difficult Method is not suitable for all types of libraries
Examining the collection directly	Evaluates quantity and quality Produces concrete suggestions for improving the collection	Evaluating the entire collection is impractical Finding a qualified evaluator may be difficult

SUGGESTED READING LIST -- COLLECTION EVALUATION

- Barron, Daniel and Charles Curran. *Information Needs Assessment of Rural Groups for Library Program Development*. University of South Carolina, 1979. (ED 176-790)

Detailed description of a collection evaluation method within the context of an evaluation of library services. The evaluation is based on 24 identified needs that are common to all communities. The evaluation method is specifically developed for use by small libraries in rural areas.

- Bonn, George S. "Evaluation of the Collection." *Library Trends*, 22:265-304, 1974.

A review of the literature (up to 1973) on collection evaluation for all types of libraries. An extensive bibliography is included.

- Buckland, Michael K. *Book Availability and the Library User*. Pergamon, 1975.

A discussion of the various factors relating to book availability, and some methods to improve book availability. Includes document delivery tests, analysis of multiple copies, variation in loan periods, optimum size of a collection, and other factors that relate to book availability.

- DeProspero, Ernest R. and others. *Performance Measures for Public Libraries*. American Library Association, 1973, pp.34-36.

Detailed description of a method for determining the probability that a library owns a particular book, and the probability that the title will be on the shelf. Three categories are covered: recently published books, periodicals, and titles in the library's collection. This method was tested in public libraries, and the ranges of probability levels from the test libraries are given.

- Eggers, Lolly. "More Effective Management of the Public Library's Book Collection." *Minnesota Libraries*, 25:56-58, 1976.

Describes techniques used at the Iowa City (Iowa) Public Library to measure and improve the use of the book collection. Includes sampling, circulation records, analyzing new purchases, establishing a list of core titles, and determining title availability. There is not enough detail in the article to repeat the procedures, but the philosophical approach to collection evaluation is well stated.

- Evans, G. Edward. "Collection Evaluation." In *Developing Library Collections*, by G. Edward Evans. Libraries Unlimited, 1979, pp. 234-253.

A textbook introduction to collection evaluation.

- Lancaster, F. W. *The Measurement and Evaluation of Library Services*. Information Resources Press, 1977, pp. 165-239.

Chapter 5: Evaluation of the Collection (pp. 165-206) is a review of the literature on evaluation techniques. Many of the references are to studies done in academic libraries, but many of the measurements described could be adapted to public libraries. Chapter 6: Evaluation of Document Delivery Capabilities (pp. 207-239) summarizes various techniques for testing availability of materials, document delivery, user satisfaction levels, and analysis of document delivery failures. Extensive bibliographies are included.

Line, Maurice B. *Library Surveys: an Introduction to Their Use, Planning, Procedure and Presentation*. Archon Books, 1967.

A useful book for conducting user and community surveys. Includes information on sampling, questionnaire design, analysis of the statistical results, reporting results, and what you can and cannot expect from a survey.

Morse, Philip M. "Measures of Library Effectiveness." *Library Quarterly*, 42:15-30, 1972.

This article describes some mathematical models that can be used to measure a library's effectiveness. Models for book use, predicting circulation, and determining multiple copy needs are included. An understanding of mathematics is necessary to understand and make use of the mathematical models presented here.

Orr, Richard H. and others. "Development of Methodologic Tools for Planning and Managing Library Services: II. Measuring a Library's Capability for Providing Documents." *Bulletin of the Medical Library Association*, 56:241-267, 1968.

Describes in detail the document delivery test used with several medical libraries.

Palmour, Vernon E. and others. *A Planning Process for Public Libraries*. American Library Association, 1980.

A how-to planning manual for libraries to set standards appropriate to local conditions and needs, design strategies to reach them, and monitor the progress of the plan. This planning process includes collection evaluation as part of an overall study of the library and its community. Includes methods and sample questionnaires for conducting community and user surveys.

Perkins, David L. *Guidelines for Collection Development*. American Library Association, 1979.

Outlines methods of collection evaluation, and includes an extensive, partially annotated bibliography.

Smith, Brian C. "Always (Almost Always) Available Book System." *The Unabashed Librarian*, No. 5:3-4, 1972.

Detailed description of the procedure used in the Bruggemeyer Memorial Library (Monterey Park, CA) to assure that sufficient multiple copies of popular titles are available.

Webb, William. "Project CoED: A University Library Collection Evaluation and Development Program." *Library Resources and Technical Services*, 13:457-462, 1969.

Describes a project using the method of list-checking in evaluating portions of a library's collection. Although the article relates the experiences of an academic library, the information may be useful to public libraries considering the list-checking method.

Williams, Edwin E. "Surveying Library Collections." *Library Surveys*, edited by Maurice F. Tauber and Irlene Roemer Stephens. Columbia University Press, 1967, pp. 23-45.

A paper presented at the Conference on Library Surveys held at Columbia University in 1965. The paper addresses the question of "what is a survey of library collections?" and discusses purposes, methods, and results. It is not a discussion of user or community surveys.

Random Sampling
A Research Procedure

Random Sampling

A Research Procedure

This section presents the concept of random sampling as a procedure for library research and statistical analysis. To gather data for evaluation purposes, one has the choice of investigating the entire identifiable group (population) or of inferring a generalization from a sample. The Southwestern Library Association recently conducted a survey of a defined population of public libraries to determine attitudes toward library sponsored literacy programs. The results of this survey will have a direct affect on SwLA's future activity in literacy programming. In a small population, such as that surveyed by SwLA, sampling was inappropriate and the total census of opinions was gathered. However, evaluations based on a complete census of a population are often too expensive and time-consuming to be practical. A sample, if properly taken, will supply a valid basis on which to make general statements relating to the entire population.

The following are some terms commonly used in relation to random sampling:

Population. The total group in which you are interested and from which you select your sample. For example, the population could be library users, the shelf list, or all the equipment in the library.

Element. An individual, or item, within the total population which has been selected to be sampled. This could be an individual library user, individual card from the shelf list, or a single piece of equipment found in the library.

Sampling frame. The actual list of all the elements in the population. This could be a list of all the users, the total shelf list, all the machines within the library, etc.

Sampling unit. The group of elements being sampled.

Sampling error. If a series of samples are taken using identical methods, the difference among their results is the sampling error. Sampling errors are reduced by increasing the size of the sample.

Non-sampling errors. When information has not been entered correctly or when faulty information has been offered for one reason or another, a non-sampling error occurs. For example, it is a non-sampling error if a person responds to a telephone survey on television programming with the answer that the station being watched was showing Dr. Zhivago, when in reality the channel was set to Flo's Yellow Rose. This type of error presents a greater risk in retaining the validity of the data than actual sampling error.

Variable. A mutually exclusive characteristic used to describe a population. Example: age, sex, educational level, employment status, etc.

Tolerance specification. The level of error allowed. The size of the sample is determined by the tolerance specification. The level of error must be specified before the sample is taken to determine how large the sample must be to achieve it. For example, if the sample must show 95% accuracy, more elements must be sampled than if only 80% accuracy is required. The larger the sample, the more accurate the results.

Confidence level. Refers to the probability that a given statement is correct. If the confidence level does not coincide with the stated tolerance specification, the validity of the sample is in question and the sample size probably needs adjusting. If a sampler works at the 95% plus or minus 5% confidence level, he is willing to accept five chances in 100 of being wrong. If the results of the sample do not allow one to estimate or infer from a given response to the population with 95% accuracy (the tolerance specification), then the original premise may be inaccurate or too small a sample was taken for the expected results to surface. A 95% confidence level can also be achieved when no preconceived notion of the sample results exists.

THE SAMPLE SURVEY

The origins of sampling lie in probability theory and many sampling methods are complicated and require mathematical training. The two methods examined here are basic. A classic example that illustrates the concept of the theory of probability is the tossing of a coin. Since the coin has two sides, the odds (probability) of getting a head or a tail are equal each time you toss the coin, 50/100 to 50/100, usually expressed 50/50. If the coin is tossed an infinite number of times, the theory of probability states that an equal number of heads and tails will occur. If, however, there is a finite number of 2,000 tosses, a random sample of 20% of the number of tosses (the population) will very likely allow an estimate of this very same outcome. A sufficiently large sample of any given population selected through random selection methods and subjected to appropriate estimating techniques increases the probability, or chance, that the sample will truly represent that population.

The first step in preparing to take a sample survey is to determine as closely as possible the population to be surveyed. As an example, the population will be the complete file of registered borrowers. The second step is to compile the sample frame. There are probably many names (elements) within the file of registered borrowers that, for one reason or another, no longer exist as valid borrowers. Culling these from the file will establish the real population to be surveyed and create the sample frame. Now the elements of this population can be selected for the sample.

Basic to probability sampling theory is the process of random selection. A random selection process guarantees that each element has an equal chance of selection or inclusion in the sample. This process serves as a check on the conscious or unconscious Bias of the sampler.

SIMPLE RANDOM SAMPLING

The simple random sample is the basic type of probability sampling. Each element of the population is numbered and has a chance to be included within the sample. The easiest method of choosing the sampling unit is to use a standard table of random numbers. (See Appendix A.) This particular table of random numbers uses columns containing sets of five digit number series. This example of random sampling will deal with a population of 500 elements, numbered 001 through 500, from which a sample of 100 will be selected using the first three digits of the five digit number series from the random numbers table. Starting at a random point on the table and reading the numbers either down or across, all the numbers ranging between 001 and 500 are extracted until 100 numbers are obtained. All the numbers in this population have an equal chance of being extracted to make up the sample unit. When encountering a duplicate number, it is passed over and the next number within the scope of the population is selected instead.

This is a simple and effective method to set up the sampling unit from the sample frame. Each element in the basic population from which the sampling unit is drawn must be listed only once and they must all be listed. If this is not the case, the sample will lack validity and will not supply true data on which to infer useful estimates. If, for example, you want to survey the registered borrowers on their opinions toward library service, hours, the adequacy of the collections, special programs, etc., the above process could be used and there is great likelihood that the resulting estimates would be representative of the opinions of all registered borrowers.

SYSTEMATIC SAMPLING

When working with larger populations, such as a file of registered borrowers or a shelf list of 10,000 items, there is a more efficient method of forming a sampling unit than using the random numbers table. The use of the rule of thumb that one inch of cards equals one hundred individuals, or the selection of every fifth card are both acceptable methods of forming a sample unit providing that the procedure is begun at a random point in the file and there is no reason to believe that the listing itself contains a bias. Random selection at systematic intervals insures that all elements of the sample frame have an equal chance of being included in the sample unit.

Systematic sampling is used often. Take the file of registered borrowers, start anywhere and proceed to pull every fifth card until the needed number of elements comprising the sample unit is obtained. If the sample unit contains the correct number of elements, the data gained from a survey of these borrowers may be inferred to be indicative of the opinions or needs of all registered borrowers.

SIZE OF SAMPLE

Although there are complicated formulae which statisticians use to compute the size of sample units, K.C. Rosenberg makes the point that a 20% sample is adequate for almost any library research. Twenty percent is more than adequate when dealing with really large populations. According to Herbert Arkin and Raymond R. Colton, a population of 500,000 sampled at a 99% confidence level plus or minus 1%, need only have a sample unit of 663 elements. This is only 0.132% of the total population. Dr. Glen Keeling says that both Gallup and Harris, when conducting a national survey, use a sample unit

of 1,600 which amounts to .001% of the total population. This percentage would of course be unrealistic in a smaller situation where the total population might be only 50,000 people or elements. In this case it would generate a sample size of only 1/2 a person. Dr. Reeling suggests that a sample size of 100-150 out of a population of 1,000 participants, would probably be sufficient. However, if one wanted to make statistical comparisons of different variables within the sample, such as male and female, age groups, economic groups, etc., each variable should be represented by a sample unit of at least 25-35 elements.

SUMMARY

Random sampling as a research tool is a legitimate method that has proven successful in many library situations. It must be stressed that all elements within the population have an equal chance of being selected for the sample unit through a random sampling process in an effort to include the whole spectrum of variables available. If the sample group is not representative of the total population, the results of the survey may be challenged. The techniques of random sampling have also been used successfully in simple data collection. Often, a tabular summary, perhaps illustrated graphically, based on data collected using these techniques, is adequate to evaluate a given population.

APPENDIX A

Random Numbers

1581922306	2068577991	8262130892	8374856019	4637567485
0928105582	7295088579	9506111652	7055508767	6472382934
4112077556	3140472186	1882412063	0684012006	0934147914
7457477408	5135810758	9670852913	1291265730	4890031305
0099520858	3060008872	2039593181	3973470195	9776135501
7245174810	2275699615	8416549348	4676163101	2229367983
6749420382	4832630032	5670884959	5432114610	2966095690
5503161011	7415696599	1196757695	0414294170	0140121538
7161238934	7666127259	5269007712	5133648050	4011960963
3503999525	6272799769	0385008136	9999089966	7544066852
4192054466	0700014629	5169436659	8408705169	1074373131
9097426117	6188898550	4031622526	8123543276	0927534537
2607950579	9561268148	3457416988	1531027806	7016633729
4584768758	2380278616	3859431781	3643768456	4141314518
3840445867	9120831830	7228567652	1267173881	4020651657
0190153442	4800088084	1165628559	5407921254	3768932478
6766554338	5585265145	5059052204	9780623691	2195448936
6315116284	9172824179	544814339	0910943666	3828538786
3908771938	4035554324	0840126399	4942059208	1475623997
5570924586	9324732596	1186563397	4425143189	3216653251
2999997185	0135968938	7678931194	1351031408	6002561840
7864375912	8383232768	1892857070	2323673751	3188881719
7065492027	6349104233	3382569652	4579426926	1513082455
0654683246	4765101577	8149224168	5468631609	6474398996
7530535958	5255147182	3519287786	2481678649	8907598597
7626984369	4727403990	9641916289	5049092870	7463807244
4785048453	36446121751	8436677768	2928794356	9956013516
4627791648	5765558107	8762562013	6185570630	6363845620
9376470693	0441608934	8743472723	2202271078	5897002653
1227991661	7936797054	9527542791	4711871173	8300978148
5582095589	5535798279	4761439855	6270247618	4446895083
4959397693	1059981450	8416606706	8234013222	6420813169
1834779358	1333750168	9434074212	5273602233	5902177005
7041002295	5726289716	3420847871	1820481234	0318831723
3555104281	0903099163	6827821899	6383872737	5901682626
9717595534	1634107293	8521057472	1471300754	2044151557
5571564123	7311613447	1129117244	3208461091	1699403190
4674262892	2809456764	5806564509	8224980942	5738031833
8161228715	0746980892	9285305274	6331989646	8764467656
1838538678	3049008967	6955157269	5482964330	2161984904
1831182305	6203176893	5937802079	3445280195	3694915658
1881227732	2923727501	8044359132	4611203031	6072112115
6791857341	6696243386	2219599137	3193884256	8224729718
3097929916	4031562749	5570757297	6273785046	1455319704
6085440634	2874566938	5496029750	4841817356	1443167141
7005051656	3196332071	5054070890	7303867953	6255181193
984641346	8306616692	0661684251	8575127291	6251533454
0625457703	4229164694	7321363715	7051128285	1108468072
5457593422	9751180574	1799906380	1989141062	5595364247
4076486653	8950826528	4934582003	4071187742	1456207629

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